

No. 2016-1664

**United States Court of Appeals
for the Federal Circuit**

CAO GROUP, INC.

Appellant,

v.

BIOLASE TECHNOLOGY, INC.

Appellee.

**Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in Reexamination No. 95/002,271**

**BRIEF OF APPELLEE
BIOLASE TECHNOLOGY, INC.**

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CERTIFICATE OF INTEREST

Counsel for Appellee, certifies the following:

1. The full name of every party or *amicus* represented by me is Biolase Technology, Inc.
2. The name of the real party in interest is Biolase Technology, Inc.
3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are: None
4. The names of all law firms and the partners or associates that appeared for the party or amicus now are represented by me in the trial court or agency or are expected to appear in this court are:

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July 25, 2016

Respectfully submitted,

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TABLE OF CONTENTS

CERTIFICATE OF INTEREST	ii
TABLE OF CONTENTS	iii
TABLE OF AUTHORITIES	v
STATEMENT OF RELATED CASES	vi
INTRODUCTION	1
STATEMENT OF THE ISSUES	1
STATEMENT OF THE CASE	2
I. THE PROCEEDINGS BELOW	2
II. THE '116 PATENT	3
III. POTTEIGER I	4
SUMMARY OF THE ARGUMENT	6
ARGUMENT	9
I. THE BOARD'S FACTUAL FINDINGS SHOULD BE REVIEWED UNDER THE "SUBSTANTIAL EVIDENCE" STANDARD	9
II. POTTEIGER I ANTICIPATES CLAIMS 1, 2, 4, 10-12, 14 AND 20.9	
A. The Board correctly found that the preambles are not limitations	10
B. The Board correctly found that, (a) even if the preambles are limiting, Potteiger I discloses a system "useful in medicine or dentistry" and (b) Potteiger I discloses a laser module that is "capable of producing laser light which is useable for therapeutic purposes in medicine or dentistry."	14
C. The Board correctly found that Potteiger I discloses "a fiber module having an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber."	22
D. The Board correctly found that Potteiger I discloses a handpiece "adapted for gripping by a human hand."	24

III. POTTEIGER I IN COMBINATION WITH THE IDENTIFIED ANALOGOUS ART INVALIDATES CLAIMS 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, AND 57 UNDER 35 U.S.C. § 103.....	28
A. It would have been obvious to combine Potteiger I with Lawhon.....	28
B. It would have been obvious to combine Potteiger I with LaserSmile.	32
C. The Board was correct in finding dependent claims 24-29, 31, 34, 36, 37, 48-53, and 57 obvious over Potteiger I in view of the several secondary references.....	34
CONCLUSION.....	35
CERTIFICATE OF SERVICE	37
CERTIFICATE OF COMPLIANCE.....	37

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Catalina Mktg. Int'l v. Coolsavings.com,</i> 289 F.3d 801 (Fed. Cir. 2002)	11, 13
<i>Corning Glass Works v. Sumitomo Elec. USA, Inc.,</i> 868 F.2d 1251 (Fed. Cir. 1989)	10, 13
<i>In re Gartside,</i> 203 F.3d 1305 (Fed. Cir. 2000)	9
<i>In re Gianelli, ,</i> 739 F.3d 1375 (Fed. Cir. 2014)	26
<i>In re ICON Health & Fitness, Inc.,</i> 496 F.3d 1374 (Fed. Cir. 2007)	27
<i>Kennametal, Inc. v. Ingersoll Cutting Tool Co.,</i> 780 F.3d 1376 (Fed. Cir. 2015)	9
<i>Pitney Bowes, Inc. v. Hewlett-Packard Co.,</i> 182 F.3d 1298 (Fed. Cir. 1999)	11
<i>Power-One, Inc. v. Artesyn Techs., Inc.,</i> 599 F.3d 1343 (Fed. Cir. 2010)	27
<i>Rowe v. Dror,</i> 112 F.3d 473 (Fed. Cir. 1997)	11
<i>In re Watts,</i> 354 F.3d 1362 (Fed. Cir. 2004)	17
Statutes	
35 U.S.C. § 102	9

STATEMENT OF RELATED CASES

1. There has been no other appeal previously before this Court or any other appellate court in or from the same action or proceeding in the lower body.
2. This Court's decision in the pending appeal may directly affect the following patent infringement cases, in which U.S. Patent No. 7,485,116 ("the '116 patent," the subject of the underlying reexamination and this appeal) is asserted:
(1) *CAO Group, Inc. v. Biolase Technology, Inc.*, Case No. 2:12-CV-00388 (D. Utah 2012), and (2) *CAO Group, Inc. v. Den-Mat Holdings, LLC*, Case No. 2:15-cv-07731-SJO-FFM (C.D. Cal. 2015).

INTRODUCTION

U.S. Patent No. 7,485,116 (the “’116 patent”) relates to a laser system having a housing, a laser module usable for therapeutic purposes in medicine or dentistry within the housing, and a fiber module attachable to and removable from the housing for storing amounts of extra fiber, where the fiber receives laser light from the laser module and transports the light to a distal end of the fiber. The Patent Trial and Appeal Board (the “Board”) held that claims 1, 2, 4, 10-12, 14, and 20 of the ’116 patent are invalid as anticipated by U.S. Patent No. 6,263,142 to Potteiger et al. (“Potteiger I”), and that claims 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, and 57 of the ’116 patent are invalid as obvious over Potteiger I combined with other prior art references. For the reasons discussed below, the Board’s findings were correct.

STATEMENT OF THE ISSUES

1. Whether the Board (and the Examiner) properly found that Potteiger I anticipates claims 1, 2, 4, 10-12, 14, and 20 of the ’116 patent because:
 - a. Potteiger I discloses a laser module usable for therapeutic purposes in medicine or dentistry;
 - b. Potteiger I discloses a fiber module having an outer casing attachable to and removable from the housing and configured to store amounts of extra fiber; and

- c. Potteiger I discloses a handpiece adapted for gripping by a human hand.
2. Whether the Board properly found that Potteiger I combined with other prior art references renders claims 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, and 57 of the '116 patent obvious.

STATEMENT OF THE CASE

I. THE PROCEEDINGS BELOW

The appellant, CAO Group, Inc. ("CAO"), filed a complaint against the appellee, Biolase Technology, Inc. ("Biolase"), on April 24, 2012, in the District of Utah, alleging that Biolase infringes the '116 patent. On September 14, 2012, Biolase filed a (pre-AIA) request for *Inter Partes* Reexamination that included four grounds for invalidity of the following claims of the '116 patent: 1, 2, 4, 5, 10-12, 14, 15, 20, and 21. *See generally* Appx000265-392. The Utah action has been stayed pending the outcome of the reexamination proceedings.

On November 19, 2012, the Examiner found a reasonable likelihood that Biolase would prevail on all four included grounds. Appx000396. During the reexamination proceedings, CAO amended the patent to add a number of claims. *See, e.g.*, Appx000416. In the end, the Examiner found the following claims of the '116 patent to be invalid: 1, 2, 4, 5, 10, 22, 24, 25, 28, 30, 31, 36, 38, 40, 42, 44, 45, 52, 54, and 56. Appx001451. The Examiner also found that claims 23, 26, 27,

29, 33, 34, 37, 39, 41, 43, 46-51, 53, 55 and 57 were patentable. *Id.* CAO appealed the invalidity findings to the Board and Biolase appealed the findings that certain claims were patentable. *See generally* Appx001676; *see also* Appx001714.

CAO's appeal was denied in its entirety—all of the Examiner's rejections were upheld by the Board. Biolase's appeal, on the other hand, was granted-in-part and some of the Examiner's findings were overturned. Appx00071-72. In the end, the following claims of the '116 patent were found invalid: 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, and 57. CAO appeals those findings. *Id.*

II. THE '116 PATENT

The '116 patent was filed on September 22, 2004, and names Densen Cao as the sole inventor. Appx000087. The Abstract describes the purported invention as “a laser system useful in medicine or dentistry that includes a removable fiber module that manages fiber dispensing to avoid damage to or waste of fiber.” *Id.* at Abstract. The claimed laser system includes a housing, a laser module within said housing, and a fiber module attachable to and removable from the housing and configured to store amounts of extra fiber, where a proximal end of the fiber is in light communication with the laser module so that the fiber can receive laser light from the laser module and transport the laser light to a distal end of the fiber. Appx000104 at claim 1.

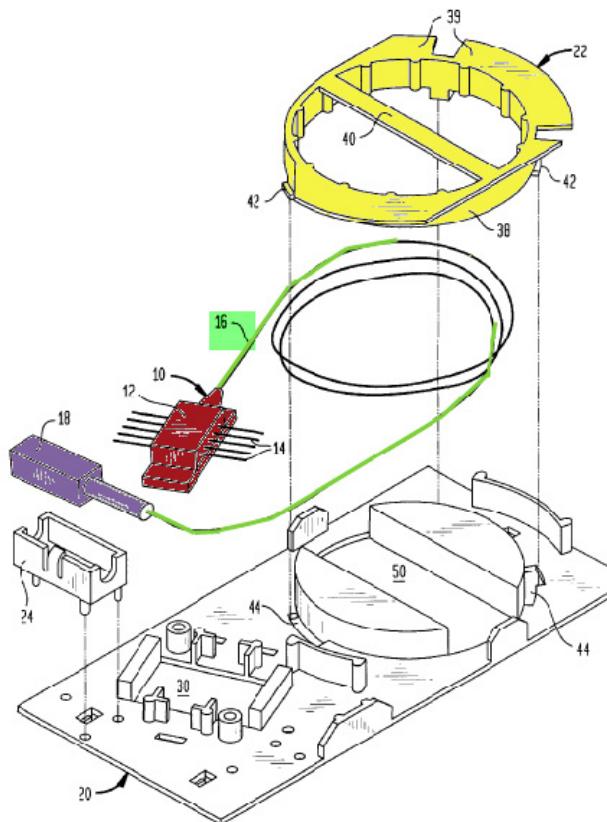
During the original examination of the application which matured into the '116 patent, the Examiner did not cite any prior art disclosing the fiber module limitation, which was added to the claims after an initial rejection. Appx001885 Specifically, the prior art of record did not disclose a fiber module, where said fiber module has an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber. Appx000266. Amending independent claims 1 and 11 (the only independent claims in the application at that time) to include this limitation overcame the Examiner's rejection and the claims were allowed. Appx001891.

The prior art relied upon by the Board, namely Potteiger I, discloses the "fiber module" limitation, along with all of the other limitations of the independent claims.

III. POTTEIGER I

The primary prior art reference on which the Board relied in finding CAO's claims invalid is Potteiger I. Potteiger I discloses "a package housing that is used to retain a wound spool and prevent a wound element from falling way from the spool." Appx000124. The laser system of Potteiger I is depicted in Figure 1 of Potteiger I below:

FIG. 1



Appx000125 at Fig. 1.

Potteiger I discloses a laser system including a laser module 10 (shown in red). Appx000127 at 2:53-55. Potteiger I explains that “an example of such a laser module is the Laser 2000 Module, manufactured and sold by Lucent Technologies of Murray Hill, N.J., the assignee herein.” Appx000127 at 1:36-40. Laser module 10 is connected to optical fiber 16 (shown in green). Appx000127 at 2:63-65.

The opposite end of fiber 16 is connected to optical connector 18 (shown in purple). Appx000128 at 3:2-4. “Many different types of optical connectors can be used depending upon the needs of a customer ordering the laser module 10.” *Id.*

The system also includes spool 22 (shown in yellow) for storing the excess fiber 16. Appx000128 at 3:24-33. “The spool 22 contains a cylindrical wall 38 around which the optical fiber 16 is wound. The top of the cylindrical wall 38 terminates with a segment flange 39 that prevents the wound optical fiber 16 from passing over the top of the cylindrical wall 38.” *Id.* Potteiger I explains that, because the spool does not have a bottom flange, the excess fiber is held in the spool by the base plate 20 or, alternatively, manually when the spool is removed from the housing. Appx000128 at 3:44-53.

SUMMARY OF THE ARGUMENT

The Board correctly determined that claims 1, 2, 4, 10-12, 14, and 20 of the ’116 patent are anticipated by Potteiger I. CAO’s arguments that Potteiger I does not disclose (a) laser systems useful in medicine or dentistry, (b) a laser module capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry, (c) a fiber module having an outer casing attachable to and removable from the housing and configured to store amounts of extra fiber, or (d) a handpiece adapted for gripping by a human hand, are without merit.

CAO argues that the preambles of claims 1 and 11 limit them to a laser system, *as a whole*, “useful in medicine or dentistry” and that Potteiger I does not disclose such a system. CAO’s argument fails for a number of reasons. First, the preambles are not limitations—they merely describe the purpose or intended use of

the purported invention and the bodies of the claims define the entire invention. Second, even if the preambles were limitations, the Board was correct in finding that Potteiger I discloses a system for use in medicine or dentistry since, among other reasons, the laser module depicted in Figure 1 of Potteiger I includes a solid state laser 12 capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry and since optical fiber 16 of Potteiger I receives the laser light generated by the solid state laser 12 and propagates that light to its free end. Substantial evidence supports these findings.

CAO also argues that Potteiger I does not disclose the claimed fiber module for storing excess fiber. CAO does not disagree that the spool 22 of Potteiger I stores excess fiber, and that it is attachable to and removable from the housing, but instead argues that the claim requires the fiber module to fully encase the fiber when it is detached from the housing. However, as the Board correctly found, CAO's proposed narrowing of the claims finds no support in the intrinsic record. When properly construed to have its broadest reasonable interpretation, substantial evidence exists to support the Board's finding that Potteiger I discloses this claim element.

CAO also argues that Potteiger I does not disclose the handpiece of claim 11 which must be "adapted for gripping by a human hand." CAO has admitted that Potteiger I discloses a handpiece, but argues that such handpiece does not satisfy

the claim limitation because, as depicted in the figures, it allegedly looks uncomfortable to hold. To support this argument, CAO takes the position that “adapted for” should not be accorded its plain meaning—“capable of”—but instead should be interpreted as “designed to.” However, the specification does not support CAO’s proposed construction. Moreover, Potteiger I discloses that “many different types of [the handpiece] can be used depending upon the needs of a customer ordering the laser module 10.”

The Board also correctly found that claims 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, and 57 of the ’116 patent are obvious in view of Potteiger I combined with other prior art references. In its limited analysis, CAO argues that two of the obviousness combinations are inoperable and, even if combined, still lack the elements of the independent claims that it argues Potteiger I lacks. As to the other obviousness combinations, CAO offers only conclusory arguments with no supporting analysis. As explained below, the Examiner and the Board both looked closely at the proposed combinations and unanimously (and correctly) confirmed they were obvious and would work. At a minimum, those findings are supported by substantial evidence.

ARGUMENT

I. THE BOARD'S FACTUAL FINDINGS SHOULD BE REVIEWED UNDER THE "SUBSTANTIAL EVIDENCE" STANDARD.

"Anticipation under 35 U.S.C. § 102 is a question of fact" reviewed for "substantial evidence." *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015). The "substantial evidence" standard has been described as requiring deference—"if the evidence in record will support several reasonable but contradictory conclusions, [the Court] will not find the Board's decision unsupported by substantial evidence simply because the Board chose one conclusion over another plausible alternative." *Id.*

Obviousness, under Section 103, is a question of law based on underlying findings of fact. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). "The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact" and, therefore, should be reviewed for substantial evidence. *Id.*

II. POTTEIGER I ANTICIPATES CLAIMS 1, 2, 4, 10-12, 14 AND 20.

CAO make four separate arguments as to why Potteiger I does not anticipate claims 1, 2, 4, 10-12, 14 and 20 of the '116 patent. First, CAO argues that the preamble limits the claims to systems "useful in medicine or dentistry" and that the system of Potteiger I as a whole is not such a system. Second, CAO argues that

Potteiger I does not describe a laser module that is “capable of producing laser light which is useable for therapeutic purposes in medicine or dentistry.” Third, CAO argues that Potteiger I does not teach the “fiber module” and “fiber storage module” limitations of claims 1 and 11, respectively. Fourth, CAO argues that Potteiger I does not teach a handpiece “adapted for gripping by a human hand.” Each of these arguments lacks merit. The Board thoroughly examined these arguments and properly rejected each of them.

A. The Board correctly found that the preambles are not limitations.

CAO argues that the Board failed to consider the preambles of claims 1 and 11 to be limitations on the claims under *Corning Glass Works* and that, when so considered, the claims are not anticipated by Potteiger I. Appellant Br. at 12-23. CAO is wrong for two separate and independent reasons. First, *Corning Glass Works* is inapposite and the preambles of claims 1 and 11 are not limiting. Second, as discussed in Section II.B. below, the Board correctly found that, “[s]ince the laser module depicted in Figure 1 of Potteiger I [includes a solid state laser 12 capable of producing laser light which is capable of use for therapeutic purposes in medicine or dentistry and since optical fiber 16 of Potteiger receives the laser light generated by the solid state laser 12 and propagates that light to its free end, Potteiger I] inherently satisfies the preamble of the claim.” Appx000014 at 6-15.

It is well settled that “a preamble is not limiting ‘where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.’” *Catalina Mktg. Int'l v. Coolsavings.com*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997)). *See also Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999) (“If . . . the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention’s limitations, but rather merely states, for example, the purpose or intended use of the invention, then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation.”).

Under these guidelines, the preambles of claims 1 and 11 of the ’116 patent are not limiting. As the Board correctly found, “the body of the claim fully defines the claimed subject matter such that the preamble reads on any apparatus which first satisfies the limitation of the body of the claim [and, therefore,] the preamble does not further limit the claim.” Appx0000011-12. The preamble merely states the purpose or intended use of the invention (“***useful*** in medicine or dentistry”).

Claim 1 is reproduced below:

A laser system ***useful in medicine or dentistry comprising:***

a housing,

a laser module within said housing, said laser module being *capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry*,

a fiber module, said fiber module having an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber,

said fiber module including fiber therein, *said fiber having a proximal end and a distal end*, and

said fiber proximal end being in light communication with said laser module so that said fiber can receive laser light from said laser module and transport said laser light to said fiber distal end.

Appx000129 at claim 1 (emphasis added). As correctly found by the Board, and as emphasized in the claim above, the body of claim 1 recites a laser module “capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry.” Appx000012. The body of the claim also recites a fiber having a proximal end “in light communication with said laser module so that said fiber can receive laser light from said laser module and transport said laser light to said fiber distal end.” *Id.* These recitations flesh out the meaning of the preamble phrase “useful in medicine or dentistry”—a laser system is inherently useful in medicine or dentistry if it includes a laser module that produces laser light usable for therapeutic purposes; and a fiber that receives laser light from the laser module and transports the laser light to a distal end of the fiber. The Board correctly agreed with this conclusion. *Id.* Accordingly, the body of the claim fully defines the

claimed subject matter so that the preamble, which merely states an intended purpose or use of the invention, is not a limitation. *See Catalina Marketing*, 289 F.3d at 810 (finding the preamble not limiting where “deletion of the disputed phrase from the preamble of Claim 1 [did] not affect the structural definition or operation of the [invention] itself[,] . . . [t]he claim body define[d] a structurally complete invention . . . [and] [t]he [preamble] merely [gave] an intended use for the [invention].”).

CAO cites *Corning Glass Works v. Sumitomo Elec. USA, Inc.* to support its position. 868 F.2d 1251 (Fed. Cir. 1989). In *Corning Glass Works*, however, the Court found the preamble to be limiting *only* because it contained “further positive limitations to the invention claimed” that were not found in the body of the claim. *Id.* at 1257. That is not the case here where, as discussed above, the body of the claim defines the complete invention and the preamble merely states an intended use of the invention—“useful in medicine or dentistry.”

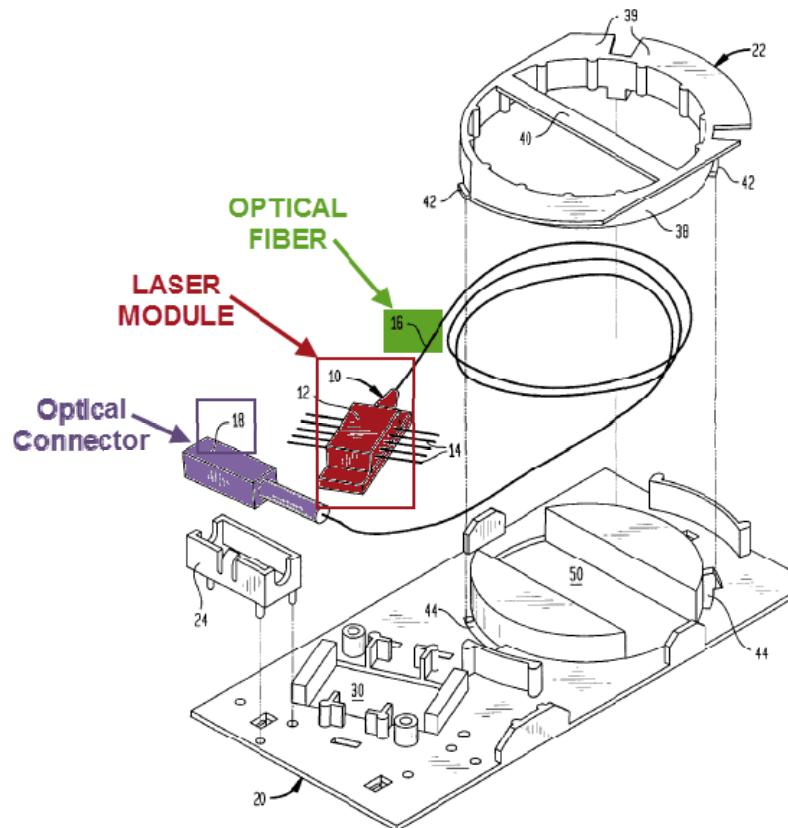
For these reasons, Board was correct in finding the preambles of claims 1 and 11 to not be limitations on the claims.

B. The Board correctly found that, (a) even if the preambles are limiting, Potteiger I discloses a system “useful in medicine or dentistry” and (b) Potteiger I discloses a laser module that is “capable of producing laser light which is useable for therapeutic purposes in medicine or dentistry.”

Even if the preambles are limiting, the Board was correct in finding that Potteiger I discloses a system “useful in medicine or dentistry” (since it discloses, among other things, a solid state laser capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry) and therefore anticipates the claims. Appx000014.

As the Board correctly found, “a laser system is inherently useful in medicine or dentistry if it includes a laser module that produces laser light usable for therapeutic purposes; and a fiber that receives laser light from the laser module and transports the laser light to a distal end of the fiber.” Appx 000012. As the Board also correctly found, and as shown in annotated Figure 1 of Potteiger I below, Potteiger I discloses such a system since the laser module depicted in Figure 1 of Potteiger I includes a solid state laser 12 capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry and since optical fiber 16 of Potteiger receives the laser light generated by the solid state laser 12 and propagates that light to its free end. Appx000014 at 6-15.

FIG. 1



As Potteiger I explains, “[a]n optical fiber 16 extends from the solid state laser 12. The optical fiber 16 receives the laser light generated by the solid state laser 12 and propagates that light to its free end. . . The free end of the optical fiber 16 terminates with an optical connector 18.” Appx000127 at 2:63-3:1. With respect to the types of applications for which Potteiger I is useful, Potteiger I did not limit itself, explaining that “[m]any different types of optical connectors can be used depending upon the needs of a customer ordering the laser module 10.” Appx000128 at 3:2-4. Potteiger I encourages persons of skill in the art to use its system in any application utilizing a laser module, optical fiber, and an optical

connector—the precise configuration required by the claims of the '116 patent. Appx000127 at 1:24-25 (“There are many different applications that utilize optical fibers.”).

Moreover, the preferred embodiment of Potteiger I utilizes the Laser 2000 Module, manufactured and sold by Lucent Technologies. Appx000127 at 1:36-39. The Laser 2000 Module datasheet from 1999 demonstrates that a person of skill in the art would have known that the Laser 2000 Module operates at a 1310 nm wavelength. Appx001853. A person of skill in the art would have also known that 1310 nm wavelength beams have particular uses in therapeutic settings. For example, a 2003 article entitled *Experimental Evaluation of Online Optical Coherence Pachymetry for Corneal Refractive Surgery* (the “Wirbelauer article”) explains that 1310 nm wavelength laser beams are useful in cornea surgery. Appx001865. Specifically, the Wirbelauer article expressly states that a laser having a wavelength of 1310 nm was used for “[i]ntraoperative monitoring of the corneal changes induced by refractive procedures to correct myopia or myopic astigmatism, such as photorefractive keratectomy (PRK) or laser-assisted in situ keratomileusis (LASIK).” *Id.* Therefore, not only does Potteiger I teach that its laser system is usable for a broad range of applications, the preferred embodiment uses a particular laser that was known to be used during surgeries and to therefore have therapeutic uses.

The Board therefore correctly found that the solid state laser 12 of Potteiger I is capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry, and that the system of Potteiger I is therefore “useful in medicine or dentistry.” Appx000011-16. At the very least, those findings are supported by substantial evidence.

As pointed out by the Board, CAO did not even challenge the Examiner’s finding that laser 12 of Potteiger I is capable of producing laser light which is usable for therapeutic purposes in medicine or dentistry. Appx000013 at 23-26 (“The Patent Owner does not appear to challenge that finding in the cross-appeal. (*See, e.g.*, App. Br. PO 12 (arguing that the Examiner erred in finding that the laser system described by Potteiger I as a whole, as opposed to the laser module 10 alone, is ‘useful in medicine or dentistry’)).”). Therefore, CAO’s argument in this appeal on that issue should be rejected as waived.¹ In any event, CAO’s argument has no merit.

CAO does not dispute that the 1310 nm laser beam produced by the Laser 2000 Module may be useful in measuring corneal thickness during corneal refractive surgery, but calls such measurement a “diagnostic” purpose, as opposed to a “therapeutic” purpose. Appellant Br. at 24. CAO attempts to support this

¹ See *In re Watts*, 354 F.3d 1362, 1367-68 (Fed. Cir. 2004) (refusing to hear Patent Owner’s new argument regarding the scope of the prior art and noting “[w]e have frequently declined to hear arguments that the applicant failed to present to the Board.”) (citations omitted).

argument using a dictionary definition from Merriam Webster, which CAO says defines “therapeutic” to mean “of or relating to the treatment of disease or disorders by remedial agents or methods.” Appellant Br. at 24. CAO’s argument should be rejected for several reasons.

First, even under CAO’s overly restrictive definition (explained below), the use of the 1310 nm laser beam to measure corneal thickness during corneal refractive surgery constitutes a “therapeutic” use since it clearly “relates to” the treatment of a disease or disorder. Second, nothing in the ’116 patent limits the term “therapeutic” in this manner—CAO does not cite the patent at all in support its position. In fact, CAO mischaracterizes the definition itself by ignoring the alternative definition proposed by the same dictionary: “providing or assisting in a cure.” Appx001161. Measuring corneal thickness during corneal refractive surgery assists in curing a problem. Thus, CAO is wrong that measuring corneal thickness during eye surgery (as described in the Wirbelauer article) is not a therapeutic purpose in medicine and that the laser module of Potteiger I is not useful for such purpose—the Board at least had substantial evidence to support its findings.

In addition to improperly arguing for the first time that measuring corneal thickness during eye surgery does not constitute a therapeutic use, CAO also attempts to narrow the scope of use of the system of Potteiger I to only those uses described in Wirbelauer. This is improper, as Potteiger I explains that its laser

system is usable in any number of applications “depending upon the needs of a customer.” Appx000128 at 3:2-4. Wirbelauer provides just one specific example of a known medical therapeutic use for the type of laser utilized in Potteiger I’s preferred embodiment. The scope of Potteiger I’s disclosure is not limited by the Wirbelauer example and other medical therapeutic uses “depending upon the needs of a customer” would have been known. *Id.*

CAO also argues that the Laser 2000 operates with 20 mW of power which is insufficient for “treating diseases or disorders.” Appellant Br. at 24-25. CAO misses the point again. Initially, CAO’s argument unduly limits the types of lasers contemplated by Potteiger I to only the Laser 2000. The Laser 2000 is only “exemplary.” Appx000129 at 5:59-60. Further, it unduly limits the claim to cover only “treatment.” Lastly, 20 mW of power was known as being useful for therapeutic purposes. Specifically, the Examiner properly found that 20 mW of power was well known for use in medical applications: “Attention is directed to the website: <http://www.spectra-medics.com/liltinfo.html> as viewed on 8/12/13 which clearly establishes that the art was well aware of laser therapy as low as 5 mW, also known as LLLT, or Low-Level Laser Therapy, as early as the late 1980’s and early 1990’s.” Appx001336.

Accordingly, to the extent that CAO is permitted to argue that the system of Potteiger I does not disclose a laser module capable of use for therapeutic purposes

in medicine or dentistry, an argument that CAO failed to raise below, that argument fails. The Board and the Examiner had substantial evidence to support its findings that Potteiger I discloses such a laser module.

CAO also attempts to support its position by citing to several declarations. The Board, however, already correctly found the declarations to be unpersuasive. Appx000016. One of the declarations on which CAO relies is from the named inventor and the other two are from purported “expert dentists.” With regard to the inventor’s declaration, CAO cites to his testimony that Potteiger I “‘is not useful in medicine or dentistry but is instead only useful for automated testing and shipping’ because it violates FDA requirements for use in medicine and dentistry, and because it lacks a laser emission and control system and power supply.” Appellant Br. at 20-21. However, even if what the inventor says is true, there is nothing in the claims that requires that the system comply with FDA requirements. The claims only state, in the preamble no less which, as discussed above, is not limiting, that the invention be “useful” in medicine or dentistry. And, for the reasons discussed above, the Board correctly found that the system of Potteiger I is useful in that regard. Moreover, the opinion of the inventor and appellant’s CEO on the scope of prior art is not more compelling than the disclosure contained in the art itself which, as explained above, is applicable to a broad range of fiber optic and laser applications and describes a system inherently useful in medicine or dentistry.

The other two declarants, John J. Graeber, DMD and Michael K. Koceja, DDS, are dentists. CAO relies on the Graeber declaration for its statement that the system of Potteiger I “is entirely too bulky for use in a dental treatment center” and on the Koceja declaration for its statement that the system “is not useful in dentistry” and “has no practical applications in Dentistry.” Appellant Br. at 21-22. However, neither of these declarants purports to have experience in manufacturing or designing the types of devices that either Potteiger I or the ’116 patent are interested. Instead, they are dentists who purport to have experience using lasers in their dental practices. In addition, even if their opinions were accepted at face value, the claims are not limited to dentistry, and they are certainly not limited to systems that are not bulky. In any event, the Board’s finding that the declarations are not persuasive and do not overcome the intrinsic record is, at a minimum, supported by substantial evidence as explained above.

For these reasons, the Board was correct in finding that Potteiger I discloses a system “useful in medicine or dentistry” and Potteiger I discloses a laser module that is “capable of producing laser light which is useable for therapeutic purposes in medicine or dentistry.”

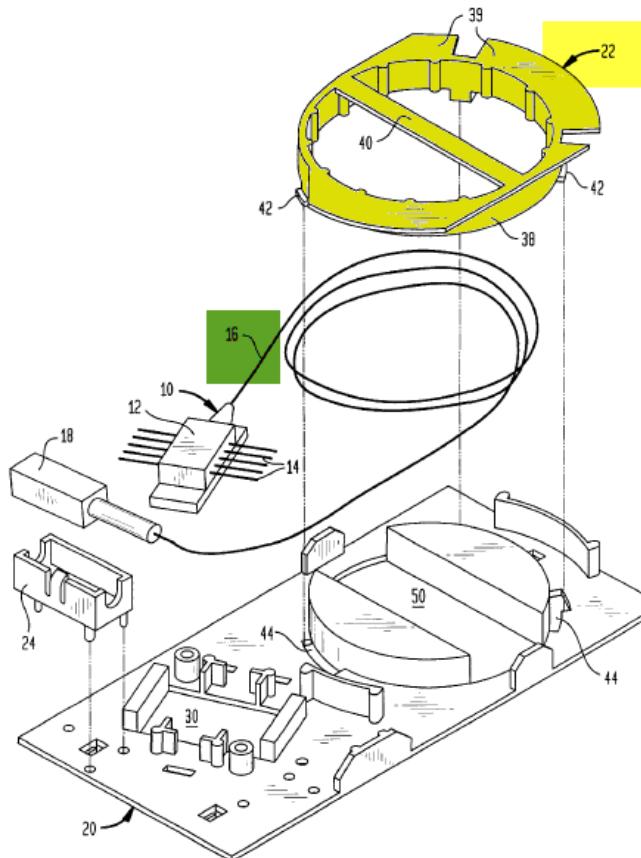
C. The Board correctly found that Potteiger I discloses “a fiber module having an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber.”

CAO argues that Potteiger I does not anticipate the claims of the '116 patent because it purportedly does not disclose a fiber module having an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber. Appellant Br. at 25-27. CAO's arguments are once again based on a proposed narrowing of the claims that finds no support in the intrinsic record. For the reasons discussed below, the Board was correct when it found these elements to be disclosed in Potteiger I.

Claim 1 recites “a fiber module, said fiber module having an outer casing attachable to and removable from said housing and configured to store amounts of extra fiber.” Appx000104 at Claim 1. Claim 11 contains a similar limitation, which the parties agree has the same meaning as in claim 1: “a fiber storage module, further comprising a module housing attachable and detachable from the casing and having a volume sufficient to store significant amounts of extra fiber.” Appx000105 at Claim 11.

CAO does not dispute that the spool or fiber storage module 22 of Potteiger I, highlighted below, stores the fiber 16.

FIG. 1



CAO also does not dispute that the fiber storage module 22 of Potteiger I is attachable to and removable from the housing in Potteiger I. Nor can it. As Potteiger I explains, “[t]he spool 22 receives the optical fiber 16 that extends between the solid state laser 12 and the optical connector 18. The spool 22 contains a cylindrical wall 38 around which the optical fiber 16 is wound.” Appx000128 at 3:24-27. “The top of the cylindrical wall 38 terminates with a segmented flange 39 that prevents the wound optical fiber 16 from passing over the top of the cylindrical wall 38.” *Id.* at 3:27-32. Moreover, the outer casing of spool 22 is

attachable to, and removable from, the baseplate 20 by means of locking tables 42. *Id.* at 3:33-43. Thus, the spool 22 is specifically designed to securely store excess fiber, and to be attachable to and removable from the housing. This is all that is required by the plain language of claims 1 and 11.

CAO's only argument is that "the spool 22 of Potteiger I can only 'store' fiber with the added assistance of the housing or of a user's hand to maintain the fiber around the spool 22." Appellant Br. at 26. In other words, CAO argues that the '116 claims contain separate limitations not found in the claims requiring that the fiber module be able to store extra amounts of fiber ***without human assistance when removed from the housing***. However, as the Board correctly found, this narrow reading of the claims has no support in the claim language, the specification, the prosecution history, or any extrinsic evidence. Appx000021 ("The Patent Owner has not identified any formal definition or clear disclaimer in the '116 patent demanding a narrower interpretation" than that required by the plain language of the claim.). While the specification of the '116 patent discloses an exemplary fiber module which retains fiber without human assistance, the Board was correct to find that claims 1 and 11 are not so limited.

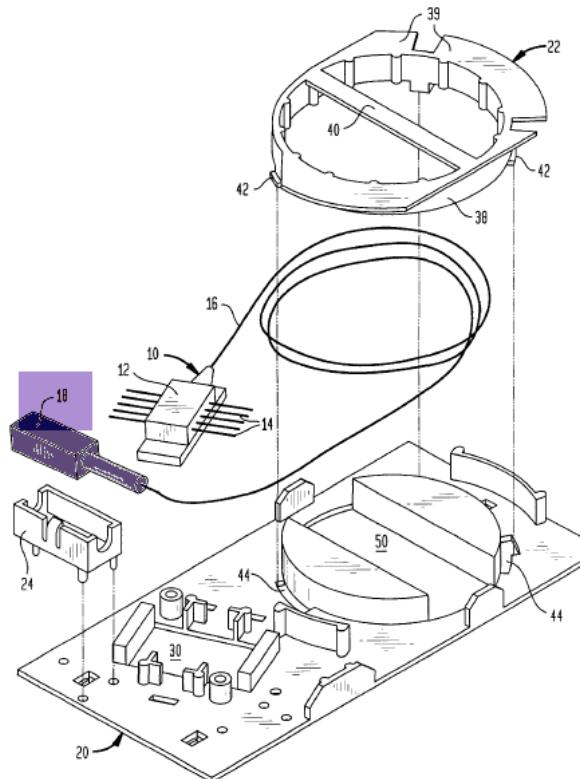
D. The Board correctly found that Potteiger I discloses a handpiece "adapted for gripping by a human hand."

Claim 11 of the '116 patent includes an additional limitation not found in claim 1, namely: "a handpiece adapted to receive said fiber distal end and being

adapted for gripping by a human hand.” Appx000105 at Claim 11. CAO argues that Potteiger I does not disclose such a handpiece. CAO is wrong again.

CAO does not dispute that Potteiger I discloses an optical connector 18 capable of being held by a hand. Optical connector 18 is highlighted below:

FIG. 1



As the Board points out, CAO admits that “[o]ptical connector 18 is a good example of something that is capable of being gripped.” Appx000052. Thus, CAO is forced to argue that the connector does not constitute a handpiece “adapted for gripping by a human hand” because it was purportedly “not designed or

constructed for gripping by a human hand.” Appellant Br. at 28 (emphasis in original). CAO’s arguments lack merit for several reasons.

First, even assuming claim 11 were limited to a handpiece that was “designed or constructed” for gripping, which it is not, Potteiger I discloses such a handpiece. As shown above in Figure 1, the optical connector 18 is designed and well adapted to be held by a human hand. CAO’s only counter argument is that the “sharp edges and corners” would cause “discomfort” to a user’s hand. Appellant Br. at 29. Therefore, CAO attempts to even further narrow this limitation to require that the handpiece be not only “designed or constructed” for gripping, but also designed or constructed to be gripped *comfortably*. Even if “comfort” were an additional claim requirement, which it is not, Potteiger I explains that “[m]any different types of optical connectors can be used depending upon the needs of a customer ordering the laser module 10.” Appx00128 at 3:2-4. Therefore, even under CAO’s unduly narrow reading of the claim which requires a hand piece “designed or constructed” for comfortable gripping, Potteiger I discloses this element.

Second, CAO’s argument that “adapted for” means “designed or constructed for” is not supported by the intrinsic record or the law. To support its position, CAO relies primarily on the *In re Gianelli* case, where the Court found that “the written description makes clear that ‘adapted to,’ as used in the ’261 application,

has a narrower meaning, *viz.*, that the claimed machine is designed or constructed to be used as a rowing machine...” 739 F.3d 1375, 1379 (Fed. Cir. 2014). CAO cites to the specification of the ’116 patent, where it states that the handpiece is “ergonomically designed to ensure a firm grip, user comfort, and maximum manual dexterity and maneuverability during use.” Appellant Br. at 28-29. However, as the Board correctly found, that passage “neither formally defines the words ‘adapted to’ nor expresses a clear intent to limit the scope of the rights defined by the claims.” Appx000053 (citing *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007)). This is made clear by the fact that the passage cited by CAO is prefaced by the non-limiting word “may”: “The handpiece **may** be ergonomically designed to ensure a firm grip, user comfort, and maximum manual dexterity and maneuverability during use.” Appx0000104 at 5:23-27 (emphasis added).

Accordingly, “adapted for” should not be defined more narrowly than its plain meaning “capable of.” *See, e.g. Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1349 (Fed. Cir. 2010) (holding that intrinsic record supports construing “adapted to power” as meaning “capable of delivering power”). And, under the proper interpretation, CAO does not dispute that Potteiger I discloses the claimed handpiece.

III. POTTEIGER I IN COMBINATION WITH THE IDENTIFIED ANALOGOUS ART INVALIDATES CLAIMS 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, AND 57 UNDER 35 U.S.C. § 103.

In addition to finding claims 1, 2, 4, 10-12, 14 and 20 anticipated by Potteiger I, the Board correctly concluded that those claims and a number of additional claims are invalid as obvious in view of Potteiger I in view of certain other prior art. For the reasons discussed below, the Board was correct.

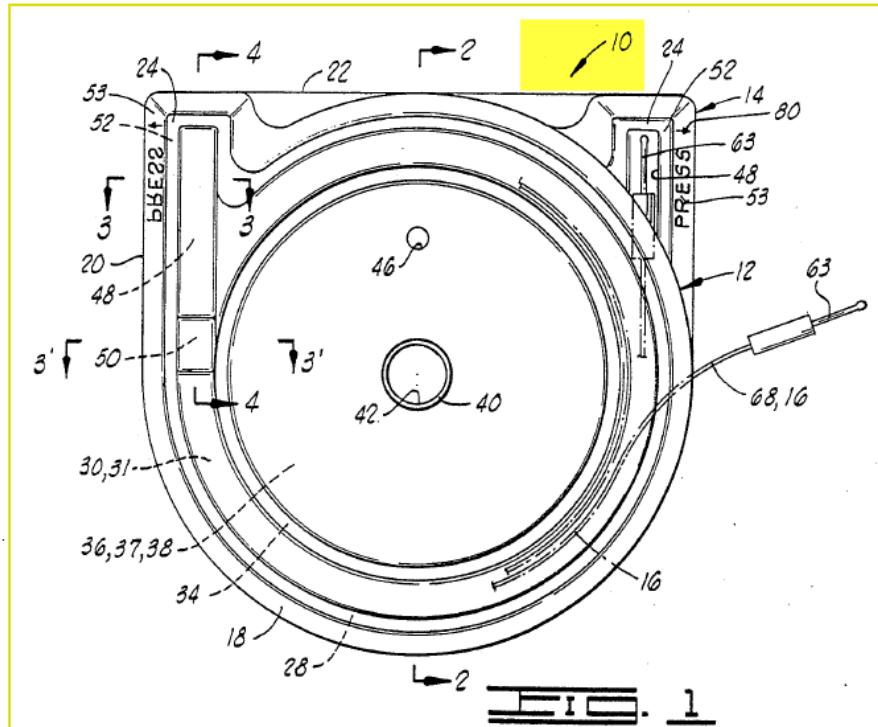
A. It would have been obvious to combine Potteiger I with Lawhon.

The Board found that the combination of Potteiger I with Lawhon (U.S. Patent No. 5,407,071) renders certain claims of the '116 patent obvious. Appx000022-25. CAO argues two reasons why it believes that the Board was incorrect: (1) Potteiger I allegedly cannot be combined with Lawhon and (2) the combined system would allegedly not be “useful in medicine or dentistry.” CAO is wrong as to both.

One of the disclosed purposes of the system of Potteiger I is “retaining a spool wound with the optical fiber of a laser module.” Appx000127 at 2:49-52. Potteiger I explains however, that one issue with its system is that “there is no physical barrier that prohibits the wound optical fiber 16 from falling off of the cylindrical wall 38 of the spool [22]. As a result, the wound optical fiber 16 must be held onto the spool 22 until the spool 22 is attached to the baseplate 20. This

makes the winding of spool 22 and the manipulation of the wound spool very difficult and time consuming.” Appx000128 at 3:47-53.

Lawhon relates to packages for storing elongated flexible fiber such as used with a surgical laser—like the system in Potteiger I. Appx000144 at 1:11-18. Lawhon describes the field of its invention as: “package[s] for an elongated flexible fiber, and more particularly, to a reusable package which provides quick access to the ends of the fiber and which allows easy winding and unwinding of the fiber from the package. Specifically, but not by way of limitation, the invention relates to a package for a light-transmitting fiber such as used with a surgical laser.” *Id.* Lawhon particularly seeks to address the unspooling issue identified in Potteiger I: “Thus, with such fibers, it is necessary to provide a means for retaining the fiber so that it does not uncoil or unspool itself.” *Id.* at 1:25-27. Lawhon explains that its package 10, depicted below, is particularly well adapted for conveniently storing flexible fiber without the unspooling problem. *Id.* at 2:13-3:45.



In light of the foregoing, the Board was correct when it stated that “one of ordinary skill in the art would have recognized that the substitution of Lawhon’s package 10 for the spool 22 in the support assembly depicted in Figure 1 of Potteiger I would have addressed the criticism of Potteiger I regarding the likelihood of the fiber falling off the spool during attachment to the baseplate 20.”

Appx000023.

CAO takes the position that, if Lawhon’s package 10 were substituted for the spool 22 of Potteiger I, the combination would result in a spool that stores fiber but unwinds easily and potentially damages the fiber during transport—the purported sole use for Potteiger I. Appellant Br. at 31-32. However, Potteiger I’s abstract explains that the invention relates to a “package housing that is used to

retain a wound spool and prevent a wound element from falling away from the spool.” Appx000124 at Abstract. While Potteiger I may have particular utility in fiber transport, its disclosure as a whole is not so limited and CAO’s argument fails for this reason alone.

Moreover, even if Potteiger I were read narrowly to only be useful in fiber transport, CAO’s argument still lacks merit. To support its argument, CAO focuses on one portion of the Lawhon disclosure, and ignores that other portions explicitly teach an outer wall for preventing fiber from resiliently expanding outside the package 10. Appx000146 at 6:1-2; 6:7-17. In other words, Lawhon discloses just what CAO says it lacks: “That is, once the fiber is wrapped within package 10, it will remain in place with the ends of fibers extending into fiber end receiving cavities 48 and the remainder of the coiled fiber in fiber-receiving cavity 31.” *Id.* at 6:14-17.

CAO additionally argues that the proposed combination does not teach a system “useful in medicine or dentistry.” This argument also lacks merit. As explained above, a person of ordinary skill in the art would consider Potteiger I standing alone to disclose a system useful in medicine or dentistry. Moreover, Lawhon explains that its “invention is particularly adapted for use with light transmitting fibers, such as used with surgical lasers in medical environments.” Appx000140 at Abstract. Understanding that it would have been obvious to

combine Potteiger I with Lawhon, it is clear that such a combination would have been “useful in medicine or dentistry.”

B. It would have been obvious to combine Potteiger I with LaserSmile.

The LaserSmile reference describes a soft-tissue and whitening laser system. Appx000150-152. The LaserSmile system, pictured below, includes a housing, a fiber, a spool on a side of the housing for receiving the fiber, a control panel on the front of the housing, and a handpiece coupled to a distal end of the fiber. Appx000152, Appx000156.



Therefore, the only difference between the LaserSmile system and the system of the '116 patent claims is the fact that the LaserSmile spool is not detachable. However, the Examiner and the Board correctly found that it would have been obvious to substitute the removable spool 22 of Potteiger I for the fixedly attached spool of the LaserSmile system. Appx000027-28.

CAO argues that guide segments in Potteiger I's spool 22 would prohibitively restrict a LaserSmile user's access to the fiber because the guide segments would not allow the fiber to unwind for flexible use. Appellant Br. at 35-36. However, contrary to CAO's assertions, and as the Board and Examiner both found, the LaserSmile system uses a very similar spool to Potteiger I, the only difference being that the spool of Potteiger I is removable:

The Examiner correctly finds that a spool similar to the spool 22 described in Potteiger I, if substituted for the spool depicted in LaserSmile, would have retained fiber when attached to the housing of the LaserSmile system in the same manner as the spool actually depicted in LaserSmile. (*See* RAN 20). The spool depicted in LaserSmile and the spool 22 of Potteiger I are similar in configuration, each including a flange imposed over a section for receiving the fiber. Taking into account the natural "spring action" of fiber wound on a spool (*see* Lawhon, col. 6, ll. 7-17), one of ordinary skill in the art would have had a reasonable expectation that the two spools would succeed in retaining fiber in similar manners.

Appx000027. Moreover, as the Board correctly found, "the teaching of Potteiger II to use guide elements 54 to prevent the optical fiber 16 from unwinding from the spool 22 so as to extend beyond the perimeter of the baseplate 20 does not persuade us that fiber wound onto a spool similar to the spool 22 likely would unwind if not held in place by guide elements." Appx000027-28. There is therefore no reason to reverse the Board's finding, which was based on substantial evidence

that it would have been obvious to combine the spool of Potteiger I with LaserSmile.

CAO also argues that a combination of the removable spool 22 of Potteiger with the LaserSmile system would not include all of the limitations of claims 1 and 11 because “the spool 22, whether used with the package baseplate 20 of Potteiger I or with the LaserSmile base structure, is not capable of storing fiber and does not define a volume sufficient to store fiber in the manner recited in claims 1 and 11, respectively.” Appellant Br. at 36-37. In other words, CAO again argues that the claims aren’t met because the removable spool uses the housing or a hand to keep the fiber in the storage receptacle. As explained above, however, this argument is based on an overly restricted reading of the claims that has no basis in the claims, the specification, or the file history of the ’116 patent. CAO does not (because it cannot) argue that the removable spool of Potteiger I does not store excess fiber—which is all that is required by the claims.

C. The Board was correct in finding dependent claims 24-29, 31, 34, 36, 37, 48-53, and 57 obvious over Potteiger I in view of the several secondary references.

The Board’s obviousness rejections of claims 24-29, 31, 34, 36, 37, 48-53, and 57 based on the combination of Potteiger I with other references should be affirmed. The Board found that Potteiger I, when combined with features of at least the following *seven* additional references, invalidates one or more of the noted

claims: Baer (U.S.P.N. 5,127,068; Uejima (U.S.P.N. 6,061,371); *SYNRAD DC-36 DC Power Supply; February 2002 Waterlase Press Release; WATERLASE YSGG*; Soltz (U.S.P.N. 5,272,716); and Patterson (U.S.P.N. 5,682,450). CAO argues that these findings, based on substantial evidence, should be reversed based solely on the following two statements: “For the reasons discussed above, Potteiger I is fatally deficient with regard to independent claims 1 and 11. None of the secondary references relied on by the PTAB overcomes the deficiencies of Potteiger I.” Appellant Br. at 37.

Such conclusory arguments cannot meet CAO’s burden on this appeal. CAO does not cite to or mention any of these references and, therefore, has presented no argument for why the Board’s findings should be overturned by this Court. The Board’s obviousness rejections based on Potteiger I and each of the unmentioned (by CAO) seven references above should therefore be affirmed.

CONCLUSION

For the foregoing reasons, Biolase respectfully requests that the Court affirm the Board’s findings that:

- Potteiger I anticipates claims 1, 2, 4, 10-12, 14 and 20 of the ’116 patent; and
- Potteiger I combined with certain other prior art renders obvious claims 1, 2, 4, 5, 10-12, 14, 15, 20-31, 33, 34, 36, 37, 40-53, 56, and 57.

Respectfully submitted,

Dated: July 25, 2016

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CERTIFICATE OF SERVICE

On July 25, 2016, the foregoing brief was submitted to the Court through the CM/ECF system. All participants in the case are represented by registered CM/ECF users and will be served electronically by the CM/ECF system.

/s/ Joshua L. Raskin

CERTIFICATE OF COMPLIANCE

I hereby certify that this brief complies with the type-volume limitations under F.R.A.P. Rule 32(a)(7)(B)(i). According to the word processing system used to prepare this document, the brief contains 7,502 words.

/s/ Joshua L. Raskin